
Actuarial Section

Report of the Actuary
on the Annual Valuation

for Fiscal Year ending June 30, 2009



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Old One Room School House
Area of Breathitt County
Jackson, Kentucky



Cavanaugh Macdonald CONSULTING, LLC

December 14, 2009

Board of Trustees
Teachers' Retirement System of the
State of Kentucky
479 Versailles Road
Frankfort, KY 40601-3800

Members of the Board:

Section 161.400 of the law governing the operation of the Teachers' Retirement System of the State of Kentucky provides that the actuary shall make an actuarial valuation of the System. We have submitted the results of the annual actuarial valuation prepared as of June 30, 2009. While not verifying the data at source, the actuary performed tests for consistency and reasonability. The combined member and state contributions for the fiscal year ending June 30, 2012 shown in the following table are required to support the benefits of the System.

Members Hired:	UNIVERSITY	NON-UNIVERSITY
Before 7/1/2008	28.14%	31.10%
On and After 7/1/2008	29.14%	32.10%

These rates represent an increase since the previous valuation in the required employer contribution rate of 2.07% of payroll for the 2011/2012 fiscal year. There has been a net decrease in the expected state special appropriation from 4.15% to 3.88%, or -0.27% of payroll. Therefore, for the 2011/2012 fiscal year, in addition to the State statutory contribution rates and the state special appropriation, there is a required increase in the employer contribution rate of 5.93%; 2.34% from this valuation and 3.59% from the previous valuation. In order to maintain the actuarial soundness of the retirement system, the entire required contributions will need to be made without any being used as a Stabilization Contribution for the Medical Insurance Fund.

The valuation takes into account the effect of amendments to the System enacted through the most recent Session of the Legislature. Effective July 1, 2008, the System was amended to change the benefit and contribution structure for members hired on or after that date. These plan changes are reflected in the June 30, 2009 valuation.

The financing objective of the System is that contribution rates will remain relatively level over time as a percentage of payroll. The promised benefits of the System are included in the actuarially calculated contribution rates which are developed using the unit credit actuarial cost method with projected benefits.

Five-year market related value of plan assets is used for actuarial valuation purposes. Gains and losses are reflected in the unfunded accrued liability that is being amortized by regular annual contributions as a level percentage of payroll within a 30-year period, on the assumption that payroll will increase by 4.0% annually. The assumptions recommended by the actuary and adopted by the Board are in the aggregate reasonably related to the experience under the System and

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to reasonable expectations of anticipated experience under the System and meet the parameters for the disclosures under GASB 25 and 27.

We have prepared the trend information shown in the Schedule of Funding Progress and the Schedule of Employer Contributions in the Financial Section of the Annual Report and Schedule A, Schedule B, Schedule C, Solvency Test and Analysis of Financial Experience shown in the Actuarial Section of the Annual Report.

The valuation reflects that a portion of the annual required contributions to the fund have been allocated to the Medical Insurance Fund and are being repaid over time.

This is to certify that the independent consulting actuary is a member of the American Academy of Actuaries and has experience in performing valuations for public retirement systems, that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement system and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the System.

Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

In our opinion, since a portion of the annual contributions required to fund the pension benefits have been allocated to the Medical Insurance Fund by the employer, the retirement fund is not funded by the employer on an actuarially sound basis. Assuming that contributions to the System are made by the employer from year to year in the future at rates recommended on the basis of the successive actuarial valuations, the continued sufficiency of the retirement fund to provide the benefits called for under the System may be safely anticipated.

Respectfully submitted,



Edward A. Macdonald, ASA, FCA, MAAA
President



Edward J. Koebel, EA, FCA, MAAA
Senior Actuary

KENTUCKY TEACHERS' RETIREMENT SYSTEM

Report of Actuary on the Valuation Prepared as of June 30, 2009 Section I - Summary of Principal Results

1. For convenience of reference, the principal results of the valuation and a comparison with the results of the previous valuation are summarized below (all dollar amounts are \$1,000's):

Valuation Date	June 30, 2009	June 30, 2008
Number of active members	75,937	75,539
Annual salaries	\$ 3,253,077	\$ 3,190,332
Number of annuitants and beneficiaries	42,050	40,739
Annual allowances	\$ 1,280,316	\$ 1,206,812
Assets		
Market value	\$11,515,884	\$14,076,692
Actuarial value	\$14,885,981	\$15,321,325
Unfunded actuarial accrued liability	\$ 8,514,445	\$ 7,138,979
Funded Ratio	63.6%	68.2%
Amortization period (years)	30	30

Valuation Date	Contribution Rates for University Members		
	June 30, 2009		June 30, 2008
	Members hired before 7/1/2008	Members hired on or after 7/1/2008	
Pension Plan:			
Normal	13.41 %	13.41 %	13.45 %
Accrued liability	<u>14.73</u>	<u>15.73</u>	<u>12.62</u>
Total	<u>28.14</u> %	<u>29.14</u> %	<u>26.07</u> %
Member	7.625%	7.625%	7.625%
State (ARC)	<u>20.515</u>	<u>21.515</u>	<u>18.445</u>
Total	28.14 %	29.14 %	26.07 %
Life Insurance Fund:			
State	0.17 %	0.17 %	0.17 %
Medical Insurance Fund:			
Member	0.75 %	1.75 %	0.75 %
State Match	0.75	0.75	0.75
State Additional	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
Total	<u>1.50</u> %	<u>2.50</u> %	<u>1.50</u> %
Total Contributions:	<u>29.81</u> %	<u>31.81</u> %	<u>27.74</u> %
Contribution rates for fiscal year ending: June 30, 2012			
Member Statutory	8.375 %	9.375 %	8.375 %
State Statutory	11.625	12.625	11.625
Required Increase	5.93	5.93	3.590
State Special	<u>3.88</u>	<u>3.88</u>	<u>4.150</u>
Total	29.81 %	31.81 %	27.740 %



Contribution Rates for Non-University Members

Valuation Date	June 30, 2009		June 30, 2008
	Members hired before 7/1/2008	Members on or after 7/1/2008	
Pension Plan:			
Normal	17.19%	17.19%	17.11%
Accrued liability	13.91	14.91	11.92
Total	<u>31.10%</u>	<u>32.10%</u>	<u>29.03%</u>
Member	9.105%	9.105%	9.105%
State (ARC)	21.995	22.995	19.925
Total	<u>31.10%</u>	<u>32.10%</u>	<u>29.03%</u>
Life Insurance Fund:			
State	0.17%	0.17%	0.17%
Medical Insurance Fund:			
Member	0.75%	1.75%	0.75%
State Match	0.75	0.75	0.75
State Additional	0.00	0.00	0.00
Total	<u>1.50%</u>	<u>2.50%</u>	<u>1.50%</u>
Total Contributions	<u>32.77%</u>	<u>34.77%</u>	<u>30.70%</u>
For fiscal year ending:	June 30, 2012		
Member Statutory	9.855%	10.855%	9.855%
State Statutory	13.105	14.105	13.105
Required Increase	5.93	5.93	3.59
State Special	3.88	3.88	4.15
Total	<u>32.77%</u>	<u>34.77%</u>	<u>30.70%</u>

- The valuation includes only the assets and liabilities associated with the pension plan. The valuation of the Medical Insurance Fund and the Active and Retired Life Insurance Benefits will be prepared separately.
- Comments on the valuation results as of June 30, 2009 are given in Section IV and further discussion of the contribution levels is set out in Sections V and VI.
- Schedule B shows the development of the actuarial value of assets. Schedule D of this report outlines the full set of actuarial assumptions and methods employed in the current valuation.
- Provisions of the System, as summarized in Schedule E, were taken into account in the current valuation. The valuation takes into account the effect of amendments to the System enacted through the most recent Session of the Legislature. Effective July 1, 2008, the System was amended to change the benefit and contribution structure for members hired on or after that date. These plan changes are reflected in the June 30, 2009 valuation.
- All amounts shown prior to the 2004/2005 fiscal year were developed and/or reported by the prior actuarial firm.



Section II - MEMBERSHIP DATA

1. Data regarding the membership of the System for use as a basis of the valuation were furnished by the Retirement System office. The following table shows the number of active members and their annual salaries as of June 30, 2009 on the basis of which the valuation was prepared.

Group	Number	Annual Salaries (\$1,000's)
Full Time	58,409	\$ 3,148,452
Part Time	<u>17,528</u>	<u>104,624</u>
Total	<u>75,937</u>	<u>\$ 3,253,076</u>

The table reflects the active membership for whom complete valuation data was submitted. The results of the valuation were adjusted to take account of inactive members and members for whom incomplete data was submitted.

2. The following table shows the number and annual retirement allowances payable to annuitants and beneficiaries on the roll of the Retirement System as of the valuation date.

The Number and Annual Retirement Allowances of Annuitants and Beneficiaries on the Roll as of June 30, 2009		
Group	Number	Annual Retirement Allowances ¹ (\$1,000's)
Service Retirements	36,749	\$ 1,172,261
Disability Retirements	2,209	55,456
Beneficiaries of Deceased Members	<u>3,092</u>	<u>52,599</u>
Total	<u>42,050</u>	<u>\$ 1,280,316</u>

¹ Includes cost-of-living adjustments effective through July 1, 2009.

3. Table 1 of Schedule F shows a distribution by age and years of service of the number and annual salaries of active members included in the valuation, while Table 2 shows the number and annual retirement allowances of annuitants and beneficiaries included in the valuation, distributed by age.



Section III - ASSETS

1. As of June 30, 2009 the market value of Pension Plan assets for valuation purposes held by the System amounted to \$11,515,883,575. This value excludes assets in the Medical Insurance Fund, the 403(b) Program Reserve Fund, and the Life Insurance Fund, which are not included in the assets used for Pension Plan valuation purposes.
2. The five-year market related value of Pension Plan assets used for valuation purposes as of June 30, 2009 was \$14,885,981,251. Schedule B shows the development of the actuarial value of assets as of June 30, 2009.
3. Schedule C shows the receipts and disbursements for the year preceding the valuation date and a reconciliation of the asset balances for the Pension Plan.

Section IV - COMMENTS ON VALUATION

1. Schedule A of this report outlines the results of the actuarial valuation. The valuation was prepared in accordance with the actuarial assumptions and the actuarial cost method, which are described in Schedule D.
2. The valuation shows that the System has an actuarial accrued liability of \$9,090,560,396 for benefits expected to be paid on account of the present active membership, based on service to the valuation date. The liability on account of benefits payable to annuitants and beneficiaries amounts to \$14,100,130,163 of which \$1,082,729,326 is for special appropriations remaining to be made toward funding minimum annuities, ad hoc increases and sick leave allowances granted after 1981. The liability for benefits expected to be paid to inactive members and to members entitled to deferred vested benefits is \$209,735,890. The total actuarial accrued liability of the System amounts to \$23,400,426,449. Against these liabilities, the System has present assets for valuation purposes of \$14,885,981,251. When this amount is deducted from the actuarial accrued liability of \$23,400,426,449, there remains \$8,514,445,198 as the unfunded actuarial accrued liability.
3. The normal contribution rate is equal to the actuarial present value of benefits accruing during the current year divided by the annual active members' payroll. The normal contribution rate is determined to be 13.41% of payroll for university members and 17.19% for non-university members.

Section V - CONTRIBUTIONS PAYABLE UNDER THE SYSTEM

1. Section 161.540 of the retirement law provides that each university member who becomes a member before July 1, 2008 will contribute 8.375% of annual salary to the System and each non-university member who becomes a member before July 1, 2008 will contribute 9.855% of annual salary. Of this amount, 0.75% is paid to the Medical Insurance Fund for medical benefits leaving 7.625% for university members and 9.105% for non-university members applicable for the retirement benefits taken into account in the valuation.
2. Section 161.540 also provides that each university member who becomes a member on or after July 1, 2008 will contribute 9.375% of annual salary to the System and each non-university member who becomes a member on or after July 1, 2008 will contribute 10.855% of annual salary. Of this amount, 1.75% is paid to the Medical Insurance Fund for medical benefits leaving 7.625% for university for



KENTUCKY TEACHERS' RETIREMENT SYSTEM

university members and 9.105% for non-university members applicable for the retirement benefits taken into account in the valuation.

3. Section 161.550 provides that the State will match the member contributions and contribute a supplemental 3.25% of members' salaries towards discharging the System's unfunded obligations. The System was amended as of June 30, 2000 to allow the Board to allocate up to a maximum of the entire 3.25% to the Medical Insurance Fund. **For the 2011/2012 fiscal year, we recommend that the Board allocate the entire 3.25% towards the Pension Plan.**
4. Therefore for university members, 10.875% of the salaries of active members who become members before July 1, 2008 and 11.875% of the salaries of active members who become members on or after July 1, 2008 is funded by statute or supplemental funding for the Pension Plan and Life Insurance Fund. For non-university members, 12.355% of the salaries of active members who become members before July 1, 2008 and 13.355% of the salaries of active members who become members on or after July 1, 2008 is funded by statute or supplemental funding for the Pension Plan and Life Insurance Fund. Of these amounts, 0.17% of payroll will be allocated to the Life Insurance Fund. Based on the results of the valuation, an additional 5.93% of payroll for both university and non-university will be required in order to maintain the amortization of the unfunded liability of the Pension Plan within a 30-year period. An additional special appropriation of 3.88% of total payroll will be made by the State. Therefore, the total required employer contribution rate to the Pension Plan is 20.515% for university members who become members before July 1, 2008 and 21.515% for university members who become members on or after July 1, 2008. The total required employer contribution rate to the Pension Plan is 21.995% for non-university members who become members before July 1, 2008 and 22.995% for non-university members who become members on or after July 1, 2008. The total member and employer contribution rates to the Pension Plan are shown in the following table.

Contribution Rates by Source
University

	Members hired before 7/1/2008	Members hired on and after 7/1/2008
<u>Member</u>		
Statutory Total	8.375%	9.375%
Statutory Medical Insurance Fund	(0.75)	(1.75)
Contribution to Pension Plan	<u>7.625%</u>	<u>7.625%</u>
<u>Employer</u>		
Statutory Matching Total	8.375%	9.375%
Statutory Medical Insurance Fund	(0.75)	(0.75)
Supplemental Funding	3.25	3.25
Subtotal	<u>10.875%</u>	<u>11.875%</u>
Life Insurance	(0.17)%	(0.17)%
Additional to Maintain 30-Year Amortization	5.93	5.93
Special Appropriation	3.88	3.88
Contribution to Pension Plan	<u>20.515%</u>	<u>21.515%</u>
Total Contribution to Pension Plan	28.14%	29.14%



**Contribution Rates by Source
Non-University**

	Members hired before 7/1/2008	Members hired on and after 7/1/2008
<u>Member</u>		
Statutory Total	9.855%	10.855%
Statutory Medical Insurance Fund	(0.75)	(1.75)
Contribution to Pension Plan	<u>9.105%</u>	<u>9.105%</u>
<u>Employer</u>		
Statutory Matching Total	9.855%	10.855%
Statutory Medical Insurance Fund	(0.75)	(0.75)
Supplemental Funding	3.25	3.25
Subtotal	<u>12.355%</u>	<u>13.355%</u>
Life Insurance	(0.17)%	(0.17)%
Additional to Maintain 30-Year Amortization	5.93	5.93
Special Appropriation	3.88	3.88
Contribution to Pension Plan	<u>21.995%</u>	<u>22.995%</u>
Total Contribution to Pension Plan	31.10%	32.10%

4. The valuation indicates that normal contributions at the rate of 13.41% of active university members' salaries are required to meet the cost of benefits currently accruing. The normal rate for non-university members is 17.19%. The difference between the total contribution rate and the normal rate remains to be applied toward the liquidation of the unfunded actuarial accrued liability. This accrued liability rate is 14.73% for university members hired before July 1, 2008, 15.73% for university members hired on and after July 1, 2008, 13.91% for non-university members hired before July 1, 2008, and 14.91% for non-university members hired on and after July 1, 2008. These rates include special appropriations of 3.88% of payroll to be made by the State. These rates are shown in the following table.

Actuarially Determined Contribution Rates

RATE	PERCENTAGE OF ACTIVE MEMBERS' SALARIES			
	UNIVERSITY		NON-UNIVERSITY	
	Members hired before 7/1/2008	Members hired on and after 7/1/2008	Members hired before 7/1/2008	Members hired on and after 7/1/2008
Normal	13.41%	13.41%	17.19%	17.19%
Accrued Liability*	<u>14.73</u>	<u>15.73</u>	<u>13.91</u>	<u>14.91</u>
Total	28.14%	29.14%	31.10%	32.10%

* Includes special appropriations of 3.88% of payroll to be made by the State.



5. The unfunded actuarial accrued liability amounts to \$8,514,445,198 as of the valuation date. Accrued liability contributions at the rates in the table above are sufficient to amortize the unfunded actuarial accrued liability over a 30-year period, based on the assumption that the payroll will increase by 4.0% annually.

Section VI - COMMENTS ON LEVEL OF FUNDING

1. Our calculations indicate that the contribution rates shown in the previous section will be sufficient to cover the benefits of the System, the annual 1.5% increases in the allowances of retired members and beneficiaries, and the liabilities for minimum annuities, ad hoc increases and sick leave allowances granted after 1981.
2. The valuation indicates that the present statutory contribution rates, supplemental funding and special appropriations, if continued at the current level percentage, along with an additional required contribution of 5.93%, not currently provided in statute, are sufficient to meet the cost of benefits currently accruing and provide for the amortization of the unfunded actuarial accrued liability over a period of 30 years. However, as existing special contributions expire, the statutory contributions or supplemental funding will be required to increase as an equal percentage of payroll, in order to amortize the unfunded liability within a period of 30 years.
3. Since the 2005 fiscal year, a portion of the contributions required for the pension fund have been allocated as loans to the Medical Insurance Fund for Stabilization Funding. Beginning with the 2009 fiscal year, additional contributions have also been allocated as loans for non-single subsidy funding. Payments are being made to repay these loans, but the borrowing is expected to continue in the future. The following table shows the amounts borrowed, annual payments and remaining balances as of June 30, 2009:

Medical Insurance Fund Stabilization Funding

	Loan Amount	Annual Payment	Balances as of July 1, 2009
2004/2005	\$29,169,700	\$4,249,600	\$19,947,105
2005/2006	62,294,800	9,075,500	48,069,098
2006/2007	73,000,000	10,207,400	58,968,035
2007/2008	125,000,000	18,280,000	116,095,000
2008/2009*	<u>133,400,000</u>	<u>19,434,500</u>	<u>133,400,000</u>
Total	\$422,864,500	\$61,247,000	\$376,479,238

**Includes \$125,000,000 for Stabilization Funding and \$8,400,000 for non-single subsidy funding.*



4. There are no excess assets or contributions available to provide additional benefits, and there is a cumulative increase in the required employer contribution of 5.93% of payroll for the fiscal year ending June 30, 2012, as shown in the following table:

Valuation Date	Fiscal Year	Increase	Cumulative Increase
June 30, 2004	June 30, 2007	0.11%	0.11%
June 30, 2005	June 30, 2008	1.21	1.32
June 30, 2006	June 30, 2009	0.56	1.88
June 30, 2007	June 30, 2010	0.58	2.46
June 30, 2008	June 30, 2011	1.13	3.59
June 30, 2009	June 30, 2012	2.34	5.93

In addition, as existing special contributions expire, the statutory contributions or supplemental funding will be required to increase as an equal percentage of payroll, in order to amortize the unfunded liability within 30 years. Any further benefit improvements must be accompanied by the entire additional contributions necessary to support the benefits.

Section VII - ANALYSIS OF FINANCIAL EXPERIENCE

The following table shows the estimated gain or loss from various factors that resulted in an increase of \$1,375,466,455 in the unfunded accrued liability from \$7,138,978,743 to \$8,514,445,198 during the year ending June 30, 2009.

Analysis of Financial Experience (Dollar amounts in thousands)

ITEM	AMOUNT OF INCREASE/ (DECREASE)
Interest (7.50%) added to previous unfunded accrued liability	\$ 535,423
Expected Accrued liability contribution	(290,426)
Contributions allocated to the Medical Insurance Fund (MIF) for Stabilization Funding during 2008/2009 fiscal year with interest	144,612
Repayment of prior year's MIF Stabilization Funding with interest	(43,380)
Experience:	
Valuation asset growth	1,024,062
Pensioners' mortality	9,699
Turnover and retirements	29,587
New entrants	60,121
Salary increases	(94,232)
Amendments	0
Assumption and method changes	0
Total	\$ 1,375,466



Section VIII - ACCOUNTING INFORMATION

- Governmental Accounting Standards Board Statements 25 and 27 set forth certain items of required supplementary information to be disclosed in the financial statements of the System and the employer. One such item is a distribution of the number of employees by type of membership, as follows:

Number of Active and Retired Members as of June 30, 2009

GROUP	NUMBER
Retirees and beneficiaries currently receiving benefits	42,050
Terminated employees entitled to benefits but not yet receiving benefits	5,245
Active plan members	<u>75,937</u>
Total	123,232

- Another such item is the schedule of funding progress as shown below.

Schedule of Funding Progress (Dollar amount in thousands)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Projected Unit Credit (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) /c)
6/30/2004	\$ 14,255,131	\$ 17,617,626	\$ 3,362,495	80.9%	\$ 2,641,533	127.3%
6/30/2005	14,598,843	19,134,870	4,536,027	76.3	2,703,430	167.8
6/30/2006*	14,857,641	20,324,781	5,467,140	73.1	2,859,477	191.2
6/30/2007	15,284,955	21,254,974	5,970,019	71.9	2,975,289	200.7
6/30/2008	15,321,325	22,460,304	7,138,979	68.2	3,190,332	223.8
6/30/2009	14,885,981	23,400,426	8,514,445	63.6	3,253,077	261.7

* Reflects change in decremental assumptions.



3. The information presented in the required supplementary schedules was determined as part of the actuarial valuation at June 30, 2009. Additional information as of the latest actuarial valuation follows.

Valuation Date	06/30/2009	Actuarial Assumptions:
Actuarial cost method	Projected unit credit	<u>Investment Rate of Return*</u>
Amortization method	Level percent of pay, open	7.50%
Remaining amortization period	30 years	<u>Projected Salary Increases*</u>
Asset valuation method	5-year smoothed market	4.00 - 8.20%
		<u>Cost-of-Living Adjustments</u>
		1.50% Annually
		<i>*Includes Inflation at 4.00%</i>

Schedule of Employer Contributions

Fiscal Year Ended June 30	Annual Required Contributions	Percentage Contributed
2004	\$364,351,412	100%
2005	383,776,826	100
2006	406,107,266	100
2007	494,565,369	85
2008	563,789,483	78
2009	600,282,735	67

4. Following is the calculation of the annual pension cost and net pension obligation for the fiscal year ending June 30, 2009. Since KTRS is a cost sharing multi employer pension plan, GASB Statement 27 does not require the participating employers to disclose this information.

Annual Pension Cost and Net Obligation for Fiscal Year Ending June 30, 2009

(a) Employer annual required contribution	\$ 600,282,735
(b) Interest on net pension obligation	18,762,794
(c) Adjustment to annual required contribution	55,186,315
(d) Annual pension cost: (a) + (b) - (c)	563,859,214
(e) Employer contributions made for fiscal year ending June 30, 2009	400,737,435
(f) Increase (decrease) in net pension obligation: (d) - (e)	163,121,779
(g) Net pension obligation beginning of fiscal year	250,170,583
(h) Net pension obligation end of fiscal year: (f) + (g)	\$ 413,292,362



TREND INFORMATION

Year Ending	Annual Pension Cost (APC)	Percentage of APC Contributed	Net Pension Obligation (NPO)
June 30, 2007	\$476,544,275	88%	\$149,410,401
June 30, 2008	539,549,665	81	250,170,583
June 30, 2009	563,859,214	71	413,292,362

SCHEDULE A

**Results of the Valuation
Prepared as of June 30, 2009
(\$1,000's)**

1. ACTUARIAL ACCRUED LIABILITY

Present value of prospective benefits payable in respect of:

(a) Present active members		
- Service retirement benefits	\$ 8,479,308	
- Disability retirement benefits	384,813	
- Death and survivor benefits	70,527	
- Refunds of member contributions	155,912	
Total		\$ 9,090,560
(b) Present inactive members and members entitled to deferred vested benefits:		209,736
(c) Present annuitants and beneficiaries:		
- Service retirement benefits	13,190,941	
- Disability retirement benefits	440,627	
- Death and survivor benefits	468,562	
Total		14,100,130
(d) Total actuarial accrued liability		23,400,426

2. PRESENT ASSETS FOR VALUATION PURPOSES 14,885,981

3. UNFUNDED ACTUARIAL ACCRUED LIABILITY
[1(d) - 2] \$ 8,514,445

4. NORMAL CONTRIBUTION RATE	UNIVERSITY	NON-UNIVERSITY
(a) Actuarial present value of benefits accruing annually	\$ 27,018	\$ 524,653
(b) Annual payroll of active members	\$ 201,440	\$ 3,051,637
(c) Normal contribution rate [(4(a) / 4(b)]	13.41%	17.19%



Solvency Test
(in millions of dollars)

Fiscal Year Ending	(1) Active Member Contributions	(2) Retirants And Beneficiaries	(3) Active Members (Employer Financed Portion)	Valuation Assets	Portion of Accrued Liabilities Covered by Assets		
					(1)	(2)	(3)
6/30/2004	\$2,546.1	\$9,906.2	\$5,165.3	\$14,255.1	100%	100%	35%
6/30/2005	2,621.3	11,370.4	5,143.2	14,598.8	100	100	12
6/30/2006	2,615.8	12,216.6	5,492.4	14,857.6	100	100	0
6/30/2007	2,762.8	12,843.7	5,648.5	15,285.0	100	97	0
6/30/2008	2,899.0	13,585.8	5,975.5	15,321.3	100	91	0
6/30/2009	3,042.3	14,309.9	6,048.2	14,886.0	100	83	0

SCHEDULE B
Development of Actuarial Value of Assets
as of June 30, 2009

(1)	Actuarial Value of Assets Beginning of Year	\$ 15,321,325,033
(2)	Market Value of Assets End of Year	11,515,883,575
(3)	Market Value of Assets Beginning of Year	14,076,692,181
(4)	Cash Flow	
a.	Contributions	736,228,499
b.	Benefit Payments	1,268,188,826
c.	Administrative Expense	8,165,757
d.	Net: (4)a - (4)b - (4)c	(540,126,084)
(5)	Investment Income	
a.	Market total: (2) - (3) - (4)d	(2,020,682,522)
b.	Assumed Rate	7.50%
c.	Amount for Immediate Recognition: [(3) x (5)b] + [(4)d x (5)b x 0.5]	1,035,497,185
d.	Amount for Phased-In Recognition: (5)a - (5)c	(3,056,179,707)
(6)	Phased-In Recognition of Investment Income	
a.	Current Year: 0.20 x (5)d	(611,235,941)
b.	First Prior Year	(409,879,449)
c.	Second Prior Year	190,240,386
d.	Third Prior Year	(75,996,339)
e.	Fourth Prior Year	(23,843,540)
f.	Total Recognized Investment Gain	(930,714,883)
(7)	Actuarial Value of Assets End of Year: (1) + (4)d + (5)c + (6)f	14,885,981,251
(8)	Difference Between Market & Actuarial Values: (2) - (7)	\$ (3,370,097,676)



SCHEDULE C
PENSION PLAN ASSETS
Summary of Receipts & Disbursements*
(Market Value)

	For the Year Ending	
	June 30, 2009	June 30, 2008
Receipts for the Year		
Contributions		
Members	\$ 293,678,564	\$ 291,423,948
Employers	<u>442,549,935</u>	<u>466,247,782</u>
Total	\$ 736,228,499	\$ 757,671,730
Net Investment Income	<u>(2,020,682,522)</u>	<u>(909,083,525)</u>
TOTAL	\$ (1,284,454,023)	\$ (151,411,795)
Disbursements for the Year		
Benefit Payments	\$ 1,252,980,407	\$ 1,170,969,101
Refunds to Members	15,208,419	15,965,083
Medical Insurance Payments	0	0
Miscellaneous, including expenses	<u>8,165,757</u>	<u>7,551,936</u>
TOTAL	\$ 1,276,354,583	\$ 1,194,486,120
Excess of Receipts over Disbursements	\$ (2,560,808,606)	\$ (1,345,897,915)
Reconciliation of Asset Balances		
Asset Balance as of the Beginning of the Year	\$ 14,076,692,181	\$ 15,422,590,096
Excess of Receipts over Disbursements	<u>(2,560,808,606)</u>	<u>(1,345,897,915)</u>
Asset Balances as of the End of the Year	<u>\$ 11,515,883,575</u>	<u>\$ 14,076,692,181</u>

* Excludes assets for Medical Insurance Fund, the 403(b) Program Reserve Fund and the Life Insurance Fund.



SCHEDULE D

Outline of Actuarial Assumptions and Methods

The assumptions and methods used in the valuation were selected based on the actuarial experience study prepared as of June 30, 2005, submitted to and adopted by the Board on September 18, 2006.

INVESTMENT RATE OF RETURN: 7.5% per annum, compounded annually.

SALARY INCREASES: Representative values of the assumed annual rates of future salary increases are as follows and include inflation at 4.0% per annum:

Age	20	25	30	35	40	45	50	55	60	65
Annual Rate	8.10%	7.20%	6.20%	5.50%	5.00%	4.70%	4.50%	4.30%	4.20%	4.00%

Separations From Service: Representative values of the assumed annual rates of death, disability, withdrawal, service retirement and early retirement are as follows:

MALES: Annual Rate of . . .							
AGE	DEATH	DISABILITY	WITHDRAWAL			RETIREMENT	
			SERVICE			Before 27 Years of Service	After 27 Years of Service*
			0 - 4	5 - 9	10+		
20	0.003%	0.01%	9.00%				
25	0.010	0.01	9.00	1.50%			
30	0.016	0.02	9.00	3.00	3.00%		
35	0.032	0.05	10.00	3.25	1.50		
40	0.048	0.08	10.00	3.75	1.50		
45	0.064	0.22	9.50	2.50	1.50		25.0%
50	0.104	0.42	10.00	4.00	3.00		20.0
55	0.216	0.60	11.00	3.00	2.70	6.0%	35.0
60	0.375	0.79	11.00	3.00	2.70	14.0	25.0
62	0.438	0.83	11.00	3.00	2.70	14.0	23.0
65	0.566	0.90	11.00	3.00	2.70	22.5	35.0
70	0.905	0.00	0.00	0.00	0.00	100.0	100.0

**Plus 5% before age 55 and 15% after age 55 in year when first eligible for unreduced retirement with 27 years of service.*



KENTUCKY TEACHERS' RETIREMENT SYSTEM

FEMALES: Annual Rate of . . .							
AGE	DEATH	DISABILITY	WITHDRAWAL			RETIREMENT	
			0 - 4	5 - 9	10+	Before 27 Years of Service	After 27 Years of Service*
20	0.002%	0.03%	6.00%				
25	0.007	0.03	8.50	3.00%			
30	0.014	0.04	9.00	4.00	1.50%		
35	0.026	0.11	8.50	4.00	2.00		
40	0.044	0.22	8.50	2.50	1.50		
45	0.055	0.38	7.00	2.50	1.50		25.0%
50	0.066	0.44	8.50	3.00	2.25		20.0
55	0.085	0.56	10.00	3.50	2.50	7.5%	35.0
60	0.122	0.85	11.00	3.50	2.50	16.5	30.0
62	0.137	0.85	11.00	3.50	2.50	12.5	25.0
65	0.159	0.85	11.00	3.50	2.50	26.0	30.0
70	0.195	0.00	0.00	0.00	0.00	100.0	100.0

*Plus 5% before age 55 and 20% after age 55 in year when first eligible for unreduced retirement with 27 years of service.

DEATHS AFTER RETIREMENT: According to the 1994 Group Annuity Mortality Table for the period after service retirement. Special rates are used for the period after disability retirement. Representative values of the assumed annual rates of death after service and disability retirement are as follows:

Annual Rate of Death After . . .

Age	Service Retirement		Disability Retirement	
	MALE	FEMALE	MALE	FEMALE
45	0.1578%	0.0973%	6.500%	6.500%
50	0.2579	0.1428	10.000	10.000
55	0.4425	0.2294	10.000	10.000
60	0.7976	0.4439	9.000	9.000
65	1.4535	0.8636	10.000	10.000
70	2.3730	1.3730	6.500	4.500
75	3.7211	2.2686	7.000	6.000
80	6.2027	3.9396	10.000	6.500
85	9.7240	6.7738	12.500	7.500
90	15.2931	11.6265	15.000	17.500
95	23.3606	18.6213	23.368	31.702

Actuarial Method: Unit Credit Actuarial Cost Method with projected benefits. Actuarial gains and losses are reflected in the unfunded actuarial accrued liability.

Assets: Five-year market related actuarial value, as developed in Schedule B. The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected actuarial value of assets, based on the assumed valuation rate of return of 7.50%. The amount recognized each year is 20% of the difference between market value and expected actuarial value.

Expense Load: None.

Percent Married: 100%, with females 3 years younger than males.

Loads: Unused Sick Leave: 1% of active liability



SCHEDULE E

**Summary of Main System Provisions
As Interpreted for Valuation Purposes**

The Teachers' Retirement System of the State of Kentucky was established on July 1, 1940. The valuation took into account amendments to the System effective through June 30, 2009. Effective July 1, 2008, the System has been amended to change the benefit structure for members hired on or after that date. These plan changes are reflected in the June 30, 2009 valuation. The following summary describes the main benefit and contribution provisions of the System as interpreted for the valuation.

1. DEFINITIONS

"Final average salary" means the average of the five highest annual salaries which the member has received for service in a covered position and on which the member has made contributions or on which the public board, institution, or agency has picked up the member contributions. For a member who retires after attaining age 55 with 27 years of service, "final average salary" means the average of the three highest annual salaries.

2. BENEFITS

Service Retirement Allowance: Members Before 7/1/2008

Condition for Allowance: Completion of 27 years of service or attainment of age 55 and 5 years of service.

Amount of Allowance: The annual retirement allowance for non-university members is equal to:

- (a) 2.0% of final average salary multiplied by service before July 1, 1983, plus
- (b) 2.5% of final average salary multiplied by service after July 1, 1983.
- (c) For individuals who become members of the Retirement System on or after July 1, 2002 and have less than 10 years of service at retirement, the retirement allowance is 2.0% of final average salary multiplied by service. If, however, they have 10 or more years, they receive a benefit percentage of 2.5% for all years of service up to 30 years.
- (d) For members retiring on or after July 1, 2004, the retirement allowance formula is 3.0% of final average salary for each year of service credit earned in excess of 30 years.

The annual retirement allowance for university members is equal to 2.0% of final average salary multiplied by all years of service.

For all members, the annual allowance is reduced by 5% per year from the earlier of age 60 or the date the member would have completed 27 years of service.

The minimum annual service allowance for all members is \$440 multiplied by credited service.



KENTUCKY TEACHERS' RETIREMENT SYSTEM

Service Retirement Allowance: Members On or After 7/1/2008

Condition for Retirement: Completion of 27 years of service, attainment of age 60 and 5 years of service or attainment of age 55 and 10 years of service.

Amount of Allowance: The annual retirement allowance for non-university members is equal to:

- (a) 1.7% of final average salary if service is 10 years or less.
- (b) 2.0% of final average salary if service is greater than 10 years and no more than 20 years.
- (c) 2.3% of final average salary if service is greater than 20 years but no more than 26 years.
- (d) 2.5% of final average salary if service is greater than 26 years but no more than 30 years.
- (e) 3.0% of final average salary for years of service greater than 30 years.

The annual retirement allowance for university members is equal to:

- (a) 1.5% of final average salary if service is 10 years or less.
- (b) 1.7% of final average salary if service is greater than 10 years and no more than 20 years.
- (c) 1.85% of final average salary if service is greater than 20 years but less than 27 years.
- (d) 2.0% of final average salary if service is greater than or equal to 27 years.

For all members, the annual allowance is reduced by 6% per year from the earlier of age 60 or the date the member would have completed 27 years of service.

Disability Retirement Allowance

Condition for Allowance: Totally and permanently incapable of being employed as a teacher and under age 60 but after completing 5 years of service.

Amount of Allowance: The disability allowance is equal to the greater of the service retirement allowance or 60% of the member's final average salary. The disability allowance is payable over an entitlement period equal to 25% of the service credited to the member at the date of disability or five years, whichever is longer. After the disability entitlement period has expired and if the member remains disabled, he will be retired under service retirement. The service retirement allowance will be computed with service credit given for the period of disability retirement. The allowance will not be less than \$6,000 per year. The service retirement allowance will not be reduced for commencement of the allowance before age 60 or the completion of 27 years of service.

Benefits Payable on Separation from Service

Any member who ceases to be in service is entitled to receive his contributions with allowable interest. A member who has completed 5 years of creditable service and leaves his contributions with the System may be continued in the membership of the System after separation from service, and file application for service retirement after the attainment of age 60

Life Insurance

A separate Life Insurance fund has been created as of June 30, 2000, to pay benefits on behalf of deceased KTRS active and retired members.



Death Benefits

A surviving spouse of an active member with less than 10 years of service may elect to receive an annual allowance of \$2,880 except that if income from other sources exceeds \$6,600 per year the annual allowance will be \$2,160.

A surviving spouse of an active member with 10 or more years of service may elect to receive an allowance which is the actuarial equivalent of the allowance the deceased member would have received upon retirement. The allowance will commence on the date the deceased member would have been eligible for service retirement and will be payable during the life of the spouse.

If the deceased member is survived by unmarried children under age 18 the following schedule of annual allowances applies:

<u>Number of Children</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
<u>Annual Allowance</u>	\$ 2,400	\$ 4,080	\$ 4,800	\$ 5,280

The allowances are payable until a child attains age 18, or age 23 if a full-time student.

If the member has no eligible survivor, a refund of his accumulated contributions is payable to his estate.

Options:

In lieu of the regular Option 1, a retirement allowance payable in the form of a life annuity with refundable balance, any member before retirement may elect to receive a reduced allowance which is actuarially equivalent to the full allowance, in one of the following forms:

Option 2. A single life annuity payable during the member's lifetime with payments for 10 years certain.

Option 3. At the death of the member his allowance is continued throughout the life of his beneficiary.

Option 3(a). At the death of the beneficiary designated by the member under Option 3, the member's benefit will revert to what would have been paid had he not selected an option.

Option 4. At the death of the member one half of his allowance is continued throughout the life of his beneficiary.

Option 4(a). At the death of the beneficiary designated by the member under Option 4, the member's benefit will revert to what would have been paid had he not selected an option.

Post-Retirement Adjustments

The retirement allowance of each retired member and of each beneficiary shall be increased by 1.50% each July 1.



3. CONTRIBUTIONS

Member Contributions

Members Before 7/1/2008: University members contribute 8.375% of salary of which 7.625% is contributed to the Retirement System and 0.75% is contributed to the Medical Insurance Fund. Non-university members contribute 9.855% of salary of which 9.105% is contributed to the Retirement System and 0.75% is contributed to the Medical Insurance Fund. Member contributions are picked up by the employer.

Members on and after 7/1/2008: University members contribute 9.375% of salary of which 7.625% is contributed to the Retirement System and 1.75% is contributed to the Medical Insurance Fund. Non-university members contribute 10.855% of salary of which 9.105% is contributed to the Retirement System and 1.75% is contributed to the Medical Insurance Fund. Member contributions are picked up by the employer.



SCHEDULE F
Table 1: Age - Service Table
Distribution of Active Members as of June 30, 2009
by Age and Service Groups

Attained Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	>= 35	TOTAL
24 & under	2,595								2,595
Total Pay	39,745,490								39,745,490
Avg. Pay	15,316								15,316
25 to 29	7,615	1,290							8,905
Total Pay	227,008,336	57,380,853							284,389,189
Avg. Pay	29,811	44,481							31,936
30 to 34	3,882	4,670	830						9,382
Total Pay	113,269,413	218,043,692	44,291,642						375,604,747
Avg. Pay	29,178	46,690	53,363						40,035
35 to 39	3,010	2,545	3,984	662					10,201
Total Pay	79,647,918	121,131,930	221,265,021	39,293,353					461,338,222
Avg. Pay	26,461	47,596	55,538	59,356					45,225
40 to 44	3,840	1,648	2,095	2,717	664				10,964
Total Pay	79,186,648	79,487,856	116,421,557	166,421,024	41,840,206				483,357,291
Avg. Pay	20,622	48,233	55,571	61,252	63,012				44,086
45 to 49	1,939	1,291	1,361	1,452	2,172	600			8,815
Total Pay	48,445,446	63,598,288	77,417,070	89,497,680	138,769,270	39,410,174			457,137,928
Avg. Pay	24,985	49,263	56,882	61,638	63,890	65,684			51,859
50 to 54	1,697	1,024	1,183	1,249	1,374	1,625	538		8,690
Total Pay	33,728,120	51,433,269	67,764,908	76,847,143	90,516,215	109,873,901	36,696,325		466,859,881
Avg. Pay	19,875	50,228	57,282	61,527	65,878	67,615	68,209		53,724
55 to 59	2,797	762	946	1,088	1,174	785	780	117	8,449
Total Pay	45,773,868	40,581,777	56,268,484	69,862,760	78,212,871	54,852,877	58,587,128	9,522,788	413,662,553
Avg. Pay	16,365	53,257	59,480	64,212	66,621	69,876	75,112	81,391	48,960
60 to 64	2,712	425	428	526	532	306	156	124	5,209
Total Pay	37,994,285	22,697,514	26,730,945	33,975,145	36,953,135	22,058,924	13,278,778	11,209,862	204,898,588
Avg. Pay	14,010	53,406	62,455	64,592	69,461	72,088	85,120	90,402	39,335
65 & over	2,055	128	108	105	127	59	53	92	2,727
Total Pay	19,405,654	6,689,343	6,997,460	7,054,833	8,858,222	4,351,813	4,221,793	8,503,592	66,082,710
Avg. Pay	9,443	52,260	64,791	67,189	69,750	73,760	79,656	92,430	24,233
Total	32,142	13,783	10,935	7,799	6,043	3,375	1,527	333	75,937
Total Pay	724,205,178	661,044,522	617,157,087	482,951,938	395,149,919	230,547,689	112,784,024	29,236,242	3,253,076,599
Avg. Pay	22,531	47,961	56,439	61,925	65,390	68,310	73,860	87,797	42,839

Average Age: 43.4

Average Service: 10.6



SCHEDULE F

Table 2

**Number of Retired Members and Beneficiaries
and their Benefits by Age**

Attained Age	Number of Members	Total Annual Benefits	Average Annual Benefits
49 & Under	758	\$ 8,751,336	\$ 11,545
50 - 54	1,341	42,889,619	31,983
55 - 59	6,461	232,264,595	35,949
60 - 64	10,276	352,699,647	34,323
65 - 69	7,866	252,891,651	32,150
70 - 74	5,382	159,572,080	29,649
75 - 79	3,972	105,566,338	26,578
80 & Over	5,994	125,680,717	20,968
Total	42,050	\$ 1,280,315,983	\$ 30,447

SCHEDULE F

Table 3

**Schedule of Retirants, Beneficiaries and Survivors
Added to and Removed from Rolls**

Year Ended	ADDED TO ROLLS		REMOVED FROM ROLLS		ROLLS AT END OF YEAR		Increase in Annual Allowances	Average Annual Allowance
	Number	Annual Allowances (in millions)	Number	Annual Allowances (in millions)	Number	Annual Allowances (in millions)		
2000	2,462	\$79.2	1,008	\$14.1	30,615	\$619.2	11.8%	\$20,226
2001	2,410	77.0	1,128	16.5	31,897	679.8	9.8	21,311
2002	2,577	86.2	1,063	16.8	33,408	749.2	10.2	22,425
2003	2,252	86.7	1,015	16.9	34,645	819.0	9.3	23,641
2004	2,126	85.4	1,033	17.5	35,738	887.0	8.3	24,819
2005	2,644	105.1	1,036	18.9	37,346	973.1	9.7	26,058
2006	2,266	121.1	1,115	20.0	38,497	1,074.2	10.4	27,902
2007	2,050	82.1	1,041	20.7	39,506	1,135.6	5.7	28,746
2008	2,183	90.6	950	19.4	40,739	1,206.8	6.3	29,623
2009	2,351	96.2	1,040	22.7	42,050	1,280.3	6.1	30,447

